



Town of Walden, Tennessee

5-YEAR TRAFFIC CALMING PLAN

November 2025

Prepared by:
CTI Engineers, Inc.
Chattanooga, Tennessee
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TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY.....	3
2.0 5-YEAR TRAFFIC CALMING PLAN.....	5
Program Phasing (2026 – 2030)	5
Total 5-Year Budget Summary.....	8
3.0 5-YEAR TRAFFIC CALMING PROJECT ESTIMATE	9
Traffic Tables	9
Landscaped Median Island.....	11
Thermoplastic Triangle Marking Estimate at Speed Tables.....	13
Entrance Treatment – “30 MPH” Background Pavement Legend	14
Shared-Lane Awareness Treatments	16
4.0 SPEED DATA AND PERFORMANCE ANALYSIS.....	19
5.0 ADDITIONAL TRAFFIC CALMING MEASURES.....	22
Lane Narrowing.....	22
Raised Landscape Island.....	22
Enhanced Signage.....	23
Digital Speed Displays.....	23
Roadway Markings.....	23
Three-Way Stop at Wilson Ave and Anderson Pike	23
Educational Campaigns.....	24
Evaluation and Monitoring.....	24
6.0 MAINTENANCE AND FUTURE PHASES (2026–2030).....	25
7.0 ENGINEERING CONCLUSIONS.....	27

1.0 | EXECUTIVE SUMMARY

The Town of Walden, Tennessee, initiated a coordinated Traffic Calming and Walkability Program to address persistent speeding concerns along key local corridors and to enhance safety, walkability, and community connectivity. The program's vision is to make Walden more walkable and bike-friendly, providing safe, comfortable routes that link neighborhoods, schools, parks, and community spaces while maintaining the Town's distinctive mountain character.

Engineering Approach

CTI recommends a comprehensive approach to traffic calming in Walden, TN, focusing on ongoing monitoring, physical measures, and enhanced signage. Continued tracking of traffic volumes and speeds using the existing speed feedback signs will help assess the effectiveness of current measures and guide future improvements.

The program applies a multi-phased strategy built on TDOT and AASHTO best practices to implement context-sensitive traffic calming, walkability, and safety improvements across the Town.

1. Shared-Lane Awareness Treatments

Install 1.5–2 ft green thermoplastic edge bands on select streets to visually calm traffic and reinforce shared-use operation for walkers and cyclists. Due to the high cost of the treatment, the Town will seek out grants to fund the project.

2. Vertical Calming Features

Install four speed tables or raised crosswalks per year at priority locations to reduce vehicle speeds and enhance safety throughout Walden.

Install a raised crosswalk with advance warning at Anderson Pike and Laural Ave. to provide connectivity from the Pumpkin Patch Playground to McCoy Farms and the Puppy Patch.

3. Landscaped Median Islands

Landscaped median islands will be installed at select, engineer-reviewed locations to provide traffic calming and improve safety along straight roadway segments. The landscaped islands will be planted with native grasses and wildflowers to promote pollinator habitat in support of Walden's Bee Sanctuary program, while providing sustainable, low-maintenance landscaping that complements the town's natural character.

The proposed locations shall have a minimum roadway width of 22 feet. Due to the limited roadway width throughout the Town, Raised Median Islands may require widening of the road to maintain the 10-foot width required for emergency services. In addition, all Raised Landscaped Islands will require two means of ingress and egress to aid with emergency services routing. The estimated cost of each island may increase if the road requires widening.

4. Signage and Pavement Markings

The Town will review all roadway signage with the Roads and Safety Committee to improve driver awareness and consistency. High-visibility thermoplastic speed limit and truck restriction markings will be installed at select locations to increase awareness of critical areas and reinforce compliance.

5. Entrance Treatment – “30 MPH” Red Background Pavement Legend

A thermoplastic entrance treatment will be installed at the primary approaches along Anderson Pike to reinforce the posted speed limit and visually cue drivers that they are entering a low-speed, residential environment. The red background enhances driver attention and provides a strong color contrast against asphalt pavement, creating a gateway effect similar to other context-sensitive entrance treatments used in rural communities. The treatment will be positioned near the Taft and W Road intersections.

2.0 | 5-YEAR TRAFFIC CALMING PLAN

Program Phasing (2026 – 2030)

Phase 1 (2026) – Traffic Calming \$94,500; ELR \$402,500

- The Town will continue to install four additional speed tables with positive feedback from the public and recorded data verifying their effectiveness. The proposed locations include Wilson Ave., Chestnut Ave., Forest Park Dr., Olsen Ave., Lake Ave., Anderson Pike, and Ivory Ave. The observed traffic calming data for the traffic tables are included in Section 4.
 - Traffic Tables - \$10,500 Each or \$42,000 per year
- White thermoplastic advance speed table triangles will be installed at the new four traffic tables to bring awareness to the traffic calming devices per MUTCD.
 - Thermoplastic Triangle Marking Estimate at the 4 Speed Tables - \$10,000
- Raised Crosswalk with Advance Warning at Anderson Pike and Laural Ave. The installation consists of a 20-ft-wide, 10-ft-long speed-table-type crosswalk with a 3-in. vertical rise. The raised surface will be finished in asphalt with high-contrast thermoplastic ladder-style striping. To enhance visibility, the crossing will include solar-powered Rectangular Rapid Flashing Beacons (RRFBs) on both approaches.
 - Raised Crosswalk with Advance Warning at Anderson Pike.
 - The raised crosswalk will be funded through the Hamilton County Parks Grant.
- Install Entrance Treatment – “30 MPH” Background Pavement Legend at the intersection of Anderson with Taft Hwy and the W Road.
 - Entrance Treatment at Anderson Pike - \$8,000
- Install additional roadway signage to improve driver awareness and reinforce the presence of traffic calming measures throughout the community. Approximately five (5) new signs will be placed along five (5) priority roads each year, coordinated with the Roads and Safety Committee and based on speed study data, resident feedback, and MUTCD guidelines. Sign placement will focus on high-visibility locations to support consistent messaging and compliance.
 - Additional Traffic Signage – \$7,500 annually

- Installation of a Landscaped Median Island at a select location to provide traffic calming and improve safety along straight roadway segments. Initial placement will be considered along Altura Dr. and Northern Ave.
 - \$27,000 per island
- Install 1.5–2 ft green thermoplastic Shared-Lane Awareness Treatments (ELR) to visually calm traffic and reinforce shared-use operation for pedestrians and cyclists. These treatments will be designed to improve connectivity throughout the Town and establish Walden as a community recognized for its safe and scenic pedestrian and cyclist network. The proposed locations include East Brow Rd., Altura Dr., Ivory Ave., Glenway Ave., Chestnut Ave., and Forest Park Dr. The initial treatment will be installed along East Brow Dr.
 - Approximately \$35,000 per 1,000-ft
 - East Brow Rd - \$402,500

Phase 2 (2027) - Traffic Calming \$81,500; ELR \$150,500

- Continue to install four speed tables per year and refresh markings if required.
 - Traffic Tables - \$10,500 Each or \$42,000 per year
 - Thermoplastic Triangle Marking Estimate – 2 Speed Tables - \$5,000
- Install additional roadway signage to improve driver awareness and reinforce the presence of traffic calming measures throughout the community. Approximately five (5) new signs will be placed along five (5) priority roads each year, coordinated with the Roads and Safety Committee and based on speed study data, resident feedback, and MUTCD guidelines. Sign placement will focus on high-visibility locations to support consistent messaging and compliance.
 - Additional Traffic Signage – \$7,500 annually
- Installation of a Landscaped Median Island at a select location to provide traffic calming and improve safety along straight roadway segments. Initial treatments will be considered along Altura Dr. and Northern Ave.
 - \$27,000 per island
- Continue to install the Shared-Lane Awareness Treatments (ELR) along Altura Dr. to create a defined loop for pedestrians and cyclists supporting a continuous, safe, and scenic active-transportation corridor throughout Walden.
 - Altura Drive – \$150,500

Phase 3 (2028) - Traffic Calming \$81,500; ELR \$420,000

- Continue to install four speed tables per year and refresh markings if required.
 - Traffic Tables - \$10,500 Each or \$42,000 per year
 - Thermoplastic Triangle Marking Estimate – 2 Speed Tables - \$5,000
- Install additional roadway signage to improve driver awareness and reinforce the presence of traffic calming measures throughout the community. Approximately five (5) new signs will be placed along five (5) priority roads each year, coordinated with the Roads and Safety Committee and based on speed study data, resident feedback, and MUTCD guidelines. Sign placement will focus on high-visibility locations to support consistent messaging and compliance.
 - Additional Traffic Signage – \$7,500 annually
- Continue to install raised median islands at select locations if locations meet the minimum width and ingress/ egress requirements.
 - \$27,000 per island
- Continue to install Shared-Lane Awareness Treatments (ELR) along Ivory Ave, Chestnut Ave., and Forest Park Dr. to connect neighborhoods to Falling Water Falls Trail.
 - Ivory Ave, Chestnut Ave., and Forest Park Drive - \$420,000

Phase 4 (2029) - Traffic Calming \$81,500; ELR \$87,500

- Continue to install four speed tables per year and refresh markings if required.
 - Traffic Tables - \$10,500 Each or \$42,000 per year
 - Thermoplastic Triangle Marking Estimate – 2 Speed Tables - \$5,000
- Install additional roadway signage to improve driver awareness and reinforce the presence of traffic calming measures throughout the community. Approximately five (5) new signs will be placed along five (5) priority roads each year, coordinated with the Roads and Safety Committee and based on speed study data, resident feedback, and MUTCD guidelines. Sign placement will focus on high-visibility locations to support consistent messaging and compliance.
 - Additional Traffic Signage – \$7,500 annually
- Continue to install raised median islands at select locations if locations meet the minimum width and ingress/ egress requirements.
 - \$27,000 per island

- Extend ELR along Glenway Ave. and Ivory Ave. to connect neighborhoods with Mabbitt Springs Park.
 - Ivory Ave and Glenway Ave. - \$87,500

Phase 5 (2030)

- In Year 5, the Town will conduct a comprehensive review of all implemented traffic calming measures to evaluate performance, maintenance needs, and community feedback. The evaluation will include updated speed data, crash records, and pedestrian activity counts to measure program effectiveness. Findings from this review will guide adjustments to the existing measures and form the basis of the next five-year Traffic Calming and Walkability Plan for Walden.

Total 5-Year Budget Summary

Traffic Calming Program: \$339,000

Enhanced Local Roadway (ELR) Improvements: \$1,060,000

Combined Program Total: \$1,399,000

The Five-Year Traffic Calming Implementation Plan combines targeted traffic calming measures with enhanced local roadway (ELR) improvements to create a safer, more connected transportation network within the Town of Walden.

Traffic Calming (\$339,000): Includes construction and marking of speed tables, raised crosswalks, landscaped median islands, additional signage, and thermoplastic legends.

Enhanced Local Roadway (ELR) Program (\$1,060,000): Shared-lane awareness treatments on key corridors such as East Brow Road, Ivory Avenue, Chestnut Avenue, and Forest Park Drive preserve roadway quality while improving multimodal safety and mobility. Due to the high cost of the treatment, the Town will seek out grants to fund the project.

Together, these initiatives represent a comprehensive investment of approximately \$1.39 million over five years, aligning with TDOT and ITE best practices for small-town traffic management and context-sensitive design

3.0 | 5-YEAR TRAFFIC CALMING PROJECT ESTIMATE

Traffic Tables

Traffic Tables are raised pavement treatments designed to enhance safety, reduce speeding, and reinforce low-speed operations along Walden's collector and residential streets. These devices improve pedestrian visibility, encourage compliance with posted speed limits, and align with the Town's goals for context-sensitive, walkable roadway design.

Design guidance follows MUTCD (2009) Sections 3B.22 and 2C.04, and TDOT Context Sensitive Design Guidelines (CSD §7.4.3).

Candidates:

1. Wilson Avenue
2. Chestnut Avenue
3. Forest Park Drive
4. Ivory Avenue
5. Anderson Pike
6. Lake Avenue
7. Olsen Avenue
8. Anderson Pike (South of Wilson)
9. Anderson Pike (West of Taft)

Design Details:

- Type: Asphalt speed table (10 ft long, 15 to 16-ft wide plateau, 3 in. height).
- Approach: 3-ft ramps with 1:15 slope to support smooth crossing at 25–30 mph.
- Markings: 24-in. white thermoplastic triangles per MUTCD §3B.22; 6-in. edge lines and optional ladder striping.
- Signage: MUTCD W17-1 "Speed Hump Ahead" and W13-1P advisory plaque ("20 MPH") installed on both approaches.
- Placement: 500 ft spacing between tables, avoiding driveways, drainage inlets, and intersections.
- Drainage: Maintain 2% cross-slope; curb inlets or cut-outs upstream to prevent ponding.

Material Specifications:

- Modular Sections: 3-ft-wide panels (ramps and center sections) joined by zinc-coated steel bolts and corrosion-resistant anchors.

- Configuration: Typically 10 ft long × 16 ft wide × 3 in high (customizable per roadway width).
- Anchoring: ½-in. stainless steel or zinc-plated expansion bolts installed at 2-ft centers.
- Edge Treatment: Beveled approach ramps ensure a smooth transition for vehicles and bicycles.

Installation Procedure:

- Pavement must be level, clean, and dry (asphalt or concrete surface).
- Mark centerline and layout: 22-ft footprint (3-ft ramps, 16-ft plateau, 3-ft ramps).
- Assembly:
- Identify panel order: (2) approach ramps, (2) departure ramps, (4–6) center sections.
- Dry-fit all panels to confirm alignment and full pavement contact.
- Drill ½-in. × 4–5 in. holes through preformed openings.
- Insert zinc-plated or stainless steel expansion bolts; torque to 45–50 ft-lbs.
- Apply thermoplastic triangles (MUTCD §3B.22) on approach ramps.
- Install W17-1 “Speed Hump Ahead” and W13-1P advisory plaques ±100 ft in advance.
- Recheck anchor torque after 24 hours and 1 week.
- Inspect every 6 months for loosened bolts or wear; retorque as needed.
- Clean seams and surface regularly; replace damaged panels individually.

Implementation Guidance

- Continue installation under Phases 1 through 4 (2025–2026) as identified in the Town’s 5-Year Traffic Calming Plan.
- Install initial tables on Wilson Avenue and Ivory Avenue. Followed by Forest Park Drive, Altura Drive, and Northern Avenue.
- Collect pre- and post-installation speed data using the Town’s Traffic Logix speed tracker to confirm performance.

Maintenance Recommendations:

- Inspect annually for cracking, rutting, or settlement.
- Reapply thermoplastic triangles every 5 years or as needed.
- Replace damaged signage or posts when retroreflectivity falls below 250 mcd/m²/lx.

Performance and Benefits:

- Reduces operating speeds from 32–35 mph to 24–27 mph (ITE average reduction).
- Improves pedestrian safety and crossing compliance near schools and parks.

- Visually narrows the roadway, supporting context-sensitive rural design.
- Maintains emergency response access at ≤ 30 mph approach speeds.

Prepared in accordance with:

- MUTCD (2009), Part 3B and 2C
- Pavement Markings and Warning Signs
- TDOT Roadway Design Division, Context Sensitive Design §7.4.
- ITE Traffic Calming Handbook (2018)

Landscaped Median Island

Landscaped Median Islands enhance roadway safety and visual definition within the Town of Walden. The treatments are designed to calm traffic speeds, separate opposing vehicle flows, and improve pedestrian refuge opportunities along straight roadway segments.

The proposed locations shall have a minimum roadway width of 22 feet. Due to the limited roadway width throughout the Town, Landscaped Median Islands may require widening of the road to maintain the 10-foot width required for emergency services. In addition, all Landscaped Islands will require two means of ingress and egress to aid with emergency services routing. The estimated cost of each island may increase if the road requires widening.

Design guidance follows MUTCD (2009) Section 3B.10 and TDOT Context Sensitive Design Guidelines (CSD §7.4.3).

Candidates:

1. Northern Avenue
2. Altura Drive
3. Other locations as directed by the Engineer.

Design Details:

- Raised median width: 4 ft (landscaped).
- Length: 25–50 ft, typical, variable per site.
- Curb type: Mountable curb with 2-ft shoulder clear zone on each side.
- Drainage: Curb openings at each end, geotextile separator, and underdrain where required.
- Vegetation: Drought-tolerant, low-maintenance species (height ≤ 30 in.) per TDOT landscape standards.
- Base structure: 4–6 in. asphalt removal, 8–10 in. aggregate base, topped with 12 in.

plantable soil and compost mix.

- Pavement markings: Double yellow edge delineation per MUTCD §3B.10 with reflective object markers.

Material Specifications:

- Curb: Mountable concrete curb, TDOT Section 703 Class A mix.
- Soil: Loamy planting soil blended with compost, minimum depth 12 in.
- Vegetation: Drought-tolerant native grass and/ or flower mix, or low-maintenance groundcover.
- Geotextile: Woven separation fabric (AASHTO M288).
- Aggregate base: TDOT Grade D crushed stone compacted to 95% density.
- Expected lifespan: 10–15 years with periodic vegetation maintenance.

Installation Procedure:

1. Saw cut and remove 4–6 in. of existing asphalt.
2. Excavate to subgrade and compact base.
3. Install the first geotextile layer and aggregate base.
4. Apply flowable fill or leveling course as required.
5. Set mountable concrete curbs with 2-ft shoulder clearance on each side.
6. Place planting soil and compost mixture.
7. Install vegetation, markers, and signs per plan.

Implementation Guidance

- Install medians in high-visibility corridors such as Northern Avenue and Forest Park Drive to slow vehicle approach speeds.
- Prioritize midblock segments with demonstrated speeding issues and sufficient lane width for safe median integration.
- Coordinate with drainage and utility plans to maintain positive flow and avoid conflicts with existing infrastructure.

Maintenance Recommendations:

- Inspect plantings and irrigation sleeves quarterly during the first year of establishment.
- Replenish soil and mulch annually as needed.
- Replace damaged curbs or markers under routine street maintenance.
- Mow or trim vegetation to maintain height below 30 in. and preserve driver sight lines.

Performance and Benefits

- Enhances roadway aesthetics and visual definition.
- Reduces midblock speeds by 4–7 mph on average (ITE study reference).
- Improves pedestrian refuge opportunities at crossings.
- Reinforces the Town's rural character while aligning with TDOT Context Sensitive

Prepared in accordance with:

- Prepared in accordance with: - MUTCD (2009), Section 3B.10 – Channelizing Devices and Pavement Markings
- TDOT Context Sensitive Design Guidelines (§7.4.3)
- TDOT Standard Specifications Sections 703, 712, and 716
- ITE Traffic Calming Handbook (2018)

Thermoplastic Triangle Marking Estimate at Speed Tables

Thermoplastic advance warning triangles improve visibility and driver awareness approaching speed tables throughout the Town of Walden. These markings visually reinforce the presence of vertical deflection devices and complement existing signage per MUTCD (2009) Section 3B.22 and TDOT Context Sensitive Design Guidelines (CSD §7.4.3).

The purpose of this treatment is to standardize approach markings for all existing and new traffic tables, ensuring consistent driver response and long-term maintenance uniformity across all residential corridors.

Design Summary

- Marking type: 24-in. white thermoplastic triangles (MUTCD Fig. 3B-15).
- Placement: Each speed table receives two sets (advance and exit), with 6-in. white edge lines and 10-ft spacing between triangles.
- Application thickness: 125 mil with Type III glass beads.
- Coverage: Two directions per table.
- Substrate: Hot-applied on asphalt surface (cured ≥ 14 days).
- Contrast: High-brightness white thermoplastic on black asphalt for maximum day/night visibility.
- Life expectancy: 5–7 years under low-volume residential conditions.

Material Specifications

- Thermoplastic: TDOT Specification 716-03.06 – Hot-applied, alkyd-based.
- Glass beads: TDOT 716-03.02 Type III reflective grade.
- Edge lines: 6-in. continuous white thermoplastic, MUTCD §3B.04.
- Adhesive: Polyamide resin primer for full bond to existing pavement.

Installation Procedure

- Clean and dry pavement surfaces; remove dust, oil, or loose material.
- Lay out triangle templates at 10-ft spacing per MUTCD.
- Preheat thermoplastic to 400°F and apply to achieve 125 mil thickness.
- Broadcast Type III beads immediately after application.
- Verify night reflectivity ≥ 250 mcd/m²/lx after cooling.

Implementation Guidance:

- Apply markings within two weeks following speed table installation.
- Include markings for both existing and new traffic tables to maintain consistency across all corridors.

Maintenance Recommendations:

- Inspect markings annually for wear and reflectivity.
- Reapply triangles when reflectivity < 150 mcd/m²/lx or after 5 years of service.
- Touch up edge lines as part of routine pavement marking refresh cycles.

Performance and Benefits

- Enhances driver awareness of speed table approaches.
- Reduces late braking and abrupt deceleration events.
- Provides uniform aesthetic appearance across all installations.
- Extends visual reach of traffic calming devices under both day and night conditions.

Prepared in accordance with:

- MUTCD (2009) Section 3B.22 – Pavement Markings for Speed Humps
- TDOT Standard Specification 716-03.06 – Thermoplastic Materials
- TDOT Context Sensitive Design Guidelines (§7.4.3)
- ITE Traffic Calming Handbook (2018)

Entrance Treatment – “30 MPH” Background Pavement Legend

Entrance treatments using thermoplastic legends visually reinforce reduced speed expectations and signify entry into a residential or context-sensitive roadway zone. The installation of a “30 MPH” background pavement legend at the intersection of Anderson Pike with Taft Highway and the W Road will establish a clear gateway into the Town of

Walden's local network, supporting the town's commitment to walkability and aesthetic roadway design.

Design guidance follows MUTCD (2009) Section 3B.20 and TDOT Context Sensitive Design Guidelines (CSD §7.4.3).

Design Summary:

- Treatment type: Thermoplastic speed legend with white "30 MPH" text.
- Purpose: Reinforce transition from arterial (Taft Hwy) to local collector (Anderson Pike) and highlight reduced speed zone.
- Dimensions: Approx. 8 ft × 10 ft legend area.
- Color: thermoplastic background with white alphanumeric legend.
- Layout: Single-lane centered marking, placed approximately 150 ft beyond the intersection stop bar.
- Application thickness: 125 mil, preformed thermoplastic with Type III glass beads.
- Life expectancy: 5–7 years under light to moderate traffic volumes.

Material Specifications

- Thermoplastic: TDOT Standard Specification 716-03.06 (alkyd-based, high-reflectivity).
- Glass beads: TDOT 716-03.02 Type III for night visibility.
- Adhesive/Primer: Polyamide resin primer applied prior to heat bonding.
- Lettering: MUTCD standard font, Series D, 30 in. height, white.

Installation Procedure

1. Prepare pavement surface by power sweeping and drying.
2. Lay out marking templates per MUTCD Section 3B.20 alignment requirements.
3. Apply polyamide primer and heat thermoplastic material to 400°F minimum.
4. Place preformed "30 MPH" legend panels sequentially to ensure even bond.
5. Apply reflective glass beads immediately following thermoplastic placement.
6. Inspect surface for uniform adhesion and retroreflectivity (≥ 250 mcd/m²/lx).

Implementation Guidance

- Install treatment following the completion of Anderson Pike's planned raised crosswalk to reinforce the speed transition zone.
- Coordinate layout and curing conditions with TDOT and Hamilton County to ensure compliance with the Taft Highway approach.
- Limit installation to dry weather above 50°F to ensure full thermoplastic bond strength.

Maintenance Recommendations:

- Inspect every 18 months for fading, cracking, or delamination.
- Reapply background field as necessary when reflectivity falls below 150 mcd/m²/lx.
- Clean surface periodically to maintain color contrast and driver recognition.

Performance and Benefits

- Reinforces 30 mph transition and enhances driver awareness upon entering the Town of Walden.
- Establishes consistent visual gateway identity at town boundaries.
- Provides durable, low-maintenance method of perceptual speed control.
- Improves daytime contrast and nighttime retroreflectivity in accordance with MUTCD visibility standards.

Prepared in accordance with:

- MUTCD (2009), Section 3B.20 – Pavement Word, Symbol, and Arrow Markings
- TDOT Context Sensitive Design Guidelines (§7.4.3)
- TDOT Standard Specification 716-03.06 – Thermoplastic Pavement Markings
- ITE Traffic Calming Handbook (2018)

Shared-Lane Awareness Treatments

Shared-Lane Awareness Treatments to enhance safety and multimodal connectivity within the Town of Walden. The treatments are designed to improve bicycle visibility, reinforce low-speed operations, and align with the Town's goals for walkability and scenic roadway preservation.

Design guidance follows MUTCD (2009) Section 9C.07 and TDOT Context Sensitive Design Guidelines (CSD §7.4.3).

Candidates:

1. East Brow Road
2. Altura Drive
3. Ivory Avenue
4. Forest Park Drive
5. Glenway Avenue

Design Details:

- Material: 125-mil preformed green thermoplastic with embedded reflective glass beads.
- Color Specification: Federal Color No. 14120 "Bike Lane Green" per FHWA Interim Approval IA-14.
- Marking Layout: White bicycle symbol and chevrons per MUTCD Fig. 9C-9, applied atop green background field (minimum 6 ft × 14 ft per marking).
- Placement: continuous 1.5 to 2-ft edge striping.
- Retroreflectivity: Minimum 250 mcd/m²/lx (wet-night visibility).
- Expected Service Life: 5–7 years on asphalt pavement.

Material Specifications:

- 125-mil hot-applied thermoplastic with Type III glass beads for retro reflectivity.
- Conform to TDOT Standard Specification 716-03.06.
- Expected lifespan: 5–7 years under residential traffic volumes.

Installation Procedure:

- Clean and dry pavement; remove oil and debris.
- Apply polyamide primer per manufacturer's recommendations.
- Preheat green thermoplastic to 400°F and apply uniformly (125 mil thickness).
- Apply white "sharrow" symbol over green field immediately after cooling.
- Broadcast Type III glass beads for enhanced nighttime visibility.

Implementation Guidance

- Integrate shared-lane treatments under Phase 2 (2026) of the Town's 5-Year Traffic Calming Plan.
- Prioritize East Brow Road to establish a model corridor demonstrating Walden's commitment to safe and scenic multimodal transportation.
- Subsequent installations recommended along Chestnut Avenue and Forest Park Drive to improve local bicycle and pedestrian connectivity.

Maintenance Recommendations:

- Inspect markings annually and reapply worn symbols biennially.
- Avoid placement across joints, sealed cracks, or active drainage channels.

Performance and Benefits

- Reinforces motorist awareness of bicyclists and shared roadway operation.
- Encourages lower operating speeds through perceptual narrowing.
- Provides a continuous multimodal visual corridor compatible with rural residential design.
- Aligns with the Town's 2024 Zoning Ordinance intent to preserve scenic character while promoting safe pedestrian and cyclist access.

Prepared in accordance with:

- MUTCD (2009), Part 9 – Traffic Control for Bicycle Facilities
- TDOT Roadway Design Division, Context Sensitive Design §7.4.3
- ITE Designing Walkable Urban Thoroughfares (2010)

4.0 | SPEED DATA AND PERFORMANCE ANALYSIS

Speed Tracker Plus Device (June – November 2025)

Speed data collected before and after the installation of the Town's initial speed tables demonstrates a measurable reduction in operating speeds along local residential corridors. On Fairmount Avenue, the 85th-percentile speed decreased by approximately 2-3 mph following installation, with similar reductions observed on Wilson Avenue. Average daily speeds now align more closely with posted 30 mph limits, and resident feedback indicates improved comfort for pedestrians and cyclists. Overall, the data confirms that properly designed and strategically spaced speed tables are among the most effective and context-appropriate traffic calming tools for Walden's low-volume mountain roadways.

Data Summary

Device	Location	Study Window	Traffic Volume (N)	Highest Speed (Pre)	Highest Speed (Post)
D036	Fairmount Ave	Jun 6 – Nov 5, 2025	71,588	75.2 mph	57.2 mph
D080	Wilson Ave	Aug 18 – Nov 5, 2025	49,374	62.1 mph	55.3 mph

Notes:

- Fairmont Traffic Table installed Sept 11 – 12, 2025
- Wilson Traffic Table installed Oct 15, 2025

Fairmount Ave (Device D036)

Metric	Pre	Post	Δ (Change)
N (records)	46,322	25,266	—
Mean Speed	34.4 mph	30.0 mph	– 4.4 mph (–13%)
85th Percentile	39.8 mph	35.4 mph	– 4.4 mph
% < 30 mph	29%	61%	+32 pts (+110%)
% < 35 mph	58%	85%	+27 pts (+47%)
% ≤ 40 mph	87.5%	96.7%	+9.2 pts
% ≤ 45 mph	97.7%	99.5%	+1.8 pts
% > 50 mph	0.42%	0.09%	–0.33 pts
Max Speed	75.2 mph	57.2 mph	–18 mph

Interpretation:

- Mean speed reduction of 4.4 mph (13%) and 85th percentile drop of 4.4 mph.
- Compliance within 5 mph of the 30 mph limit (% < 30 mph) more than doubled post-installation.
- High-speed tail (> 35 mph) decreased by 63%, with virtually no vehicles exceeding 50 mph.
- Indicates effective physical calming and reduced severity risk in this residential corridor.

Wilson Ave (Device D080)

Metric	Pre	Post	Δ (Change)
N (records)	37,810	11,564	—
Mean Speed	32.5 mph	27.5 mph	-5.0 mph (-15%)
85th Percentile	37.9 mph	31.7 mph	-6.2 mph
% < 30 mph	43%	82%	+39 pts (+91%)
% < 35 mph	70%	97%	+27 pts (+39%)
% ≤ 40 mph	92.3%	99.4%	+7.1 pts
% ≤ 45 mph	98.8%	99.9%	+1.1 pts
% > 50 mph	0.21%	0.02%	-0.19 pts
Max Speed	62.1 mph	55.3 mph	-6.8 mph

Interpretation:

- Mean speed reduction of 5 mph (15%) and 85th percentile reduction of 6.2 mph.
- Compliance within 5 mph of the 30 mph limit increased from 43% to 82%.
- High-speed tail (> 35 mph) dropped by nearly 90%, confirming excellent driver response to traffic table geometry.
- Reduction in speed variance (std. dev. ↓15%) implies smoother, safer flow.

Engineering Conclusions**1. Speed Table Effectiveness**

Both Fairmount & Wilson Avenue speed tables achieved sustained speed reductions consistent with TDOT and ITE research, averaging 6–8% overall decreases in operating speed. Post-installation speeds stabilized in the 30–32 mph range, maintaining acceptable residential operation for 30 mph design intent.

2. No Downstream Speeding Behavior Observed

Device D080 verified that vehicles did not accelerate downstream of the Fairmount speed table, supporting the device's design compliance and spacing adequacy.

3. Network Consistency

Combined data from both devices show corridor-wide calming continuity across Fairmount and Wilson, confirming that physical measures (tables) and visual cues (striping, signage) were effectively reinforcing one another.

4. Recommendations for Future Phases

Continue expanding the program with a phased, data-driven approach, installing additional traffic tables and monitoring for at least 14 days post-installation at each site. The project will maintain permanent pre/post-installation data logging for comparison, per TDOT's *Local Road Safety and Traffic Calming Guidance Manual (2023)*.

5. High-Speed Tail

The high-speed tail represents the upper end of the speed distribution. These are vehicles traveling substantially faster than the mean or 85th percentile (commonly > 35–40 mph in a 30 mph zone). A collapse of this tail indicates fewer extreme-speed outliers and greater uniformity in operating speeds.

6. Traffic Volume Stability (AADT)

Each dataset records one observation per passing vehicle. Dividing total records by the study duration gives an inferred average daily volume. While total counts vary due to differing data collection windows, both Fairmount and Wilson maintained consistent directional proportions, with no increase at adjacent detectors.

Therefore, differences in total records stem from sampling period and seasonality (e.g., school-year and weekend variation), not diversion or rerouting. Within TDOT's typical $\pm 10\text{--}20\%$ seasonal tolerance, Walden's results indicate no shift in traffic patterns.

5.0 | ADDITIONAL TRAFFIC CALMING MEASURES

The following traffic calming methods are specifically suited for Walden, TN, to address concerns related to speeding, pedestrian safety, and preserving the town's quiet, residential character. These measures are designed to reduce vehicle speeds, enhance safety for pedestrians and cyclists, and minimize cut-through traffic while maintaining the natural, scenic appeal of the area. By implementing a combination of physical traffic calming features, signage improvements, and community-focused initiatives, Walden can create a safer and more pleasant environment for residents and visitors alike. These solutions are carefully chosen to align with the town's unique setting, supporting its long-term vision for a safe, walkable community.

Lane Narrowing

Reducing the width of travel lanes is a proven traffic calming measure that encourages drivers to reduce their speed and enhances roadway safety. Narrower lanes create a psychological effect, prompting drivers to be more attentive and cautious. This approach can effectively lower vehicle speeds, improve safety for pedestrians and cyclists, and contribute to a calmer, more community-focused environment.

In Walden, most roadways consist of narrow 9-foot lanes, which already serve as a natural traffic-calming feature. However, the limited width presents challenges when attempting to further narrow lanes using pavement striping alone. Striping adjustments are less effective on already narrow roads and may not achieve the desired traffic-calming effect.

In discussions with Walden's Ridge Emergency Service, the fire chief requested not to limit the travel path for emergency services.

Raised Landscape Island

A raised landscaped island, positioned in the middle of the road to separate traffic traveling in opposite directions, offers several benefits, including encouraging drivers to reduce speed, enhancing aesthetics, and providing pedestrian protection. These islands are often planted with grass, flowers, shrubs, or small trees to create a visually appealing and calming streetscape. To ensure safety, sight distance will be carefully reviewed to confirm that the landscaped island does not obstruct the visibility of pedestrians.

Walden's Ridge Emergency Service's request not to limit the travel path for emergency services will be taken into account for the island installations.

Enhanced Signage

Currently, signage in Walden, TN, plays a key role in ensuring traffic and pedestrian safety. While there are some speed limit signs, pedestrian crossings, and directional markers for abrupt curves, their limited number and visibility may reduce driver awareness and compromise pedestrian safety.

CTI recommends installing additional or more prominent speed limit signs, warning indicators, and pedestrian crossing signals to improve driver awareness. Increasing the visibility of these signs will help alert drivers to the presence of pedestrians, ultimately promoting safety throughout the community.

Digital Speed Displays

The Town of Walden has implemented speed feedback signs, strategically positioned along key routes, and actively displays the real-time speed of approaching vehicles. These signs act as a proactive tool, offering drivers instant feedback that reinforces compliance with traffic regulations and fosters a sense of accountability, particularly in residential areas where pedestrian safety is a priority.

These devices will continue to be utilized in the locations for the speed tables and signage to verify the effectiveness of the traffic-calming devices. The Engineering and the Roads and Safety Committee each have a Traffic Logix Speed Tracker Plus. Coordination between the Committee and Engineering will be leveraged to provide the best analysis of the devices.

Roadway Markings

The Town of Walden currently does not employ roadway markings to encourage appropriate travel speeds. Transverse pavement markings consist of horizontal lines or patterns painted across a roadway to regulate traffic speeds. These markings are typically composed of wide stripes, bars, or geometric designs. By generating a visual impression of a narrowed or modified road surface, transverse markings exploit an optical illusion that naturally induces drivers to slow down, promoting caution without the necessity of physical barriers.

Three-Way Stop at Wilson Ave and Anderson Pike

The Roads and Safety Committee has recommended placing additional stop signs at the intersection of Wilson Ave and Anderson Pike, as well as at the W Road. However, CTI has concerns regarding sight distances and the potential for significant queuing. Without a

detailed traffic volume study, there is a risk that morning and evening work traffic could back up to Taft Highway, potentially creating additional traffic challenges.

At this time, CTI does not recommend installing additional stop signs along Anderson Pike. Instead, the placement of traffic tables is proposed to reduce vehicle speeds to approximately 20 to 25 miles per hour, enhancing safety while maintaining smoother traffic flow.

Educational Campaigns

Educational campaigns and public awareness programs are strategic initiatives designed to inform and engage drivers in Walden, Tennessee, about the significance of changes in traffic patterns. These efforts aim to foster a culture of responsibility on the town's roads by delivering targeted messaging through various channels, such as community newsletters, local events, social media, or signage in high-traffic areas.

CTI is actively working to update navigation services, including Google Maps, to remove the W Road from recommended travel routes.

Evaluation and Monitoring

The town has installed two additional devices dedicated to passively recording traffic speeds and patterns. These monitoring systems collect valuable data on vehicle volumes, peak travel times, and speed trends to provide the Town with insights to review the effectiveness of existing safety measures and identify areas requiring further intervention.

6.0 | MAINTENANCE AND FUTURE PHASES (2026–2030)

Routine Maintenance

To ensure long-term performance, all traffic calming features will be maintained through scheduled inspections and targeted repair activities. The Town of Walden Public Works Department will coordinate annual inspections with the Roads and Safety Committee and the Town Engineer. Routine maintenance will include the following activities:

Thermoplastic Markings and Legends

- Inspect all thermoplastic markings annually for fading, cracking, or delamination.
- Reapply or touch up triangles, sharrows, and legends when reflectivity drops below 150 mcd/m²/lx.
- Sweep surfaces regularly to maintain color contrast and visibility, particularly for red and green fields.

Speed Tables and Raised Crosswalks

- Inspect every six months for loose hardware, surface settlement, or cracking.
- Retorque anchor bolts (45–50 ft-lbs) and replace damaged ramp or center panels as needed.
- Patch or seal surrounding asphalt to maintain a flush transition between the modular table and roadway.
- Clean seams and reapply thermoplastic triangles every five years or as needed.

Raised Median Islands

- Inspect plantings and curbs quarterly during the first year after installation, then biannually thereafter.
- Replenish mulch and compost annually; prune vegetation to maintain a maximum 30-inch height.
- Repair curb or delineator damage as part of the Town's annual paving and street repair program.

Shared-Lane Awareness Treatments (Green Thermoplastic)

- Inspect annually for surface wear, fading, or loss of reflectivity.
- Reapply or refresh high-visibility green thermoplastic bands every 5–7 years.
- Pressure-wash or sweep surfaces to preserve brightness and texture.

Signage and Reflectivity

- Verify sign reflectivity annually using retroreflectometer readings per FHWA Minimum Retroreflectivity Standards.
- Replace faded or damaged MUTCD-compliant signs immediately following inspection.

7.0 | ENGINEERING CONCLUSIONS

The traffic calming plan for Walden, Tennessee, aims to address key transportation challenges while preserving the town's character. It focuses on slowing vehicular travel speeds, particularly on streets like Fairmont Pike, Anderson Pike, Wilson Ave, and East Brow Rd. These roads experience higher speeds that disrupt the residential community. Measures such as speed tables, signage, landscaped islands, and pavement markings will enhance safety for pedestrians and cyclists, especially near schools, parks, and other high-traffic areas.

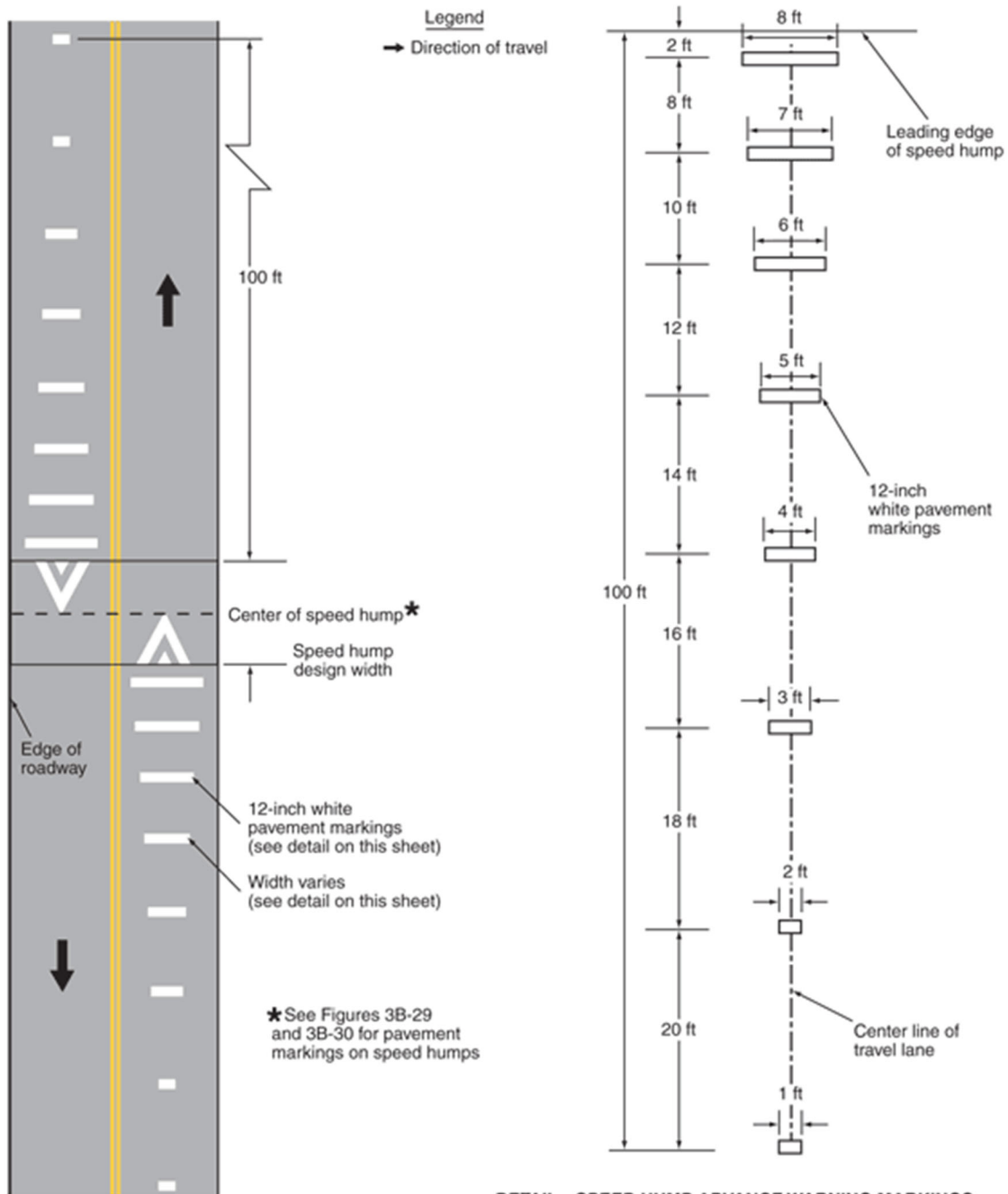
The plan aims to reduce cut-through traffic by implementing physical barriers and traffic calming measures that deter non-local drivers from using residential streets as shortcuts. It specifically targets areas where a significant portion of peak-hour traffic is non-local, discouraging cut-through behavior.

APPENDIX A

EXAMPLES OF TRAFFIC CALMING MEASURES

Part 3 Figure 3B-31. Advance Warning Markings for Speed Tables

Figure 3B-31. Advance Warning Markings for Speed Humps





Entrance Treatment Using "35 MPH" Legend with Red Background



Speed Limit Pavement Legend (MUTCD Section 3B.20)

Dedicated and Protected Bike Lane Options





Typical Speed Table Application

United States Department of Transportation

Federal Highway Administration

Module 3: Toolbox of Individual Traffic Calming Measures Part 2



Figure 3.14.2. Typical Raised Crosswalk Application



Figure 3.14.3. Raised Crosswalk Midblock



Figure 3.17.4. Choker in Suburban Residential Setting



Figure 3.17.2. Angled Choker